

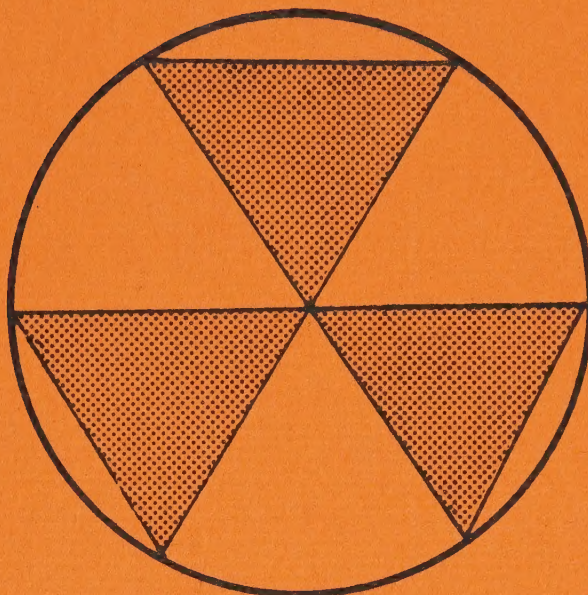
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public safety element

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UNIVERSITY OF CALIFORNIA



general
plan
city of orange

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RESOLUTION NO. 4756

A RESOLUTION OF THE CITY COUNCIL OF THE
CITY OF ORANGE ADOPTING THE PUBLIC SAFETY
ELEMENT AS PART OF THE GENERAL PLAN OF THE
CITY OF ORANGE.

WHEREAS, Section 65302(i) of the California Government Code requires the approval of a Public Safety Element as part of the Comprehensive General Plan for any California City; and

WHEREAS, the City Council has received a recommendation from the Planning Commission concerning the Public Safety Element and has held a public hearing to consider the adoption of the Public Safety Element as a part of the General Plan; and

WHEREAS, said element is required for the purpose of introducing safety considerations into the planning process in order to protect the community from fires and geologic hazards; and

WHEREAS, such element shall include features necessary for such protection as evacuation routes, peak load water supply requirements, minimum road widths, clearances around structures, and geologic hazard mapping in areas of known geologic hazard; and

WHEREAS, the Public Safety Element is an important link in the overall comprehensive planning effort in the City of Orange, and when used in conjunction with the other General Plan Elements, will serve as a valuable tool in guiding and directing future growth in the community; and

WHEREAS, implementation of the Public Safety Element of the General Plan of the City of Orange will serve to achieve many of the stated goals of the community and promote the general welfare, health and safety, of its citizens; and

WHEREAS, the City Council has determined that the Planning Commission has presented a Public Safety Element which complies with the aforementioned guidelines; and

WHEREAS, the City Council has accepted the findings of the Environmental Review Board to prepare Negative Declaration 449.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Orange does hereby adopt the Public Safety Element as part of the Comprehensive General Plan of the City of Orange and hereby instructs the staff to execute and implement the measures outlined in the aforementioned Public Safety Element.

BE IT FURTHER RESOLVED that the City Clerk is hereby directed to place a copy of the aforementioned Public Safety Element on file in the Office of the City Clerk together with a date and time stamp indicating the time and date subsequent to the Council approval of this resolution that the City Clerk placed said element of record in the Office of the City Clerk.

ADOPTED this 28th day of March, 1978.

ROBERT D. HOYT
MAYOR OF THE CITY OF ORANGE

ATTEST:

CHARLOTTE M. JOHNSTON, CMC
CITY CLERK OF THE CITY OF ORANGE

I hereby certify that the foregoing resolution was duly and regularly adopted by the City Council of the City of Orange at a regular meeting thereof held on the 28th day of March 1978, by the following vote:

AYES: COUNCILMEN: BARRERA, HOYT, PEREZ

NOES: COUNCILMEN: NONE

ABSENT: COUNCILMEN: SMITH, BEAM

CHARLOTTE M. JOHNSTON, CMC
CITY CLERK OF THE CITY OF ORANGE

STATE OF CALIFORNIA)
COUNTY OF ORANGE) ss.
CITY OF ORANGE)

I, CHARLOTTE M. JOHNSTON, CMC, City Clerk of the City of Orange, California, DO HEREBY CERTIFY that the foregoing Resolution No. 4756 is a true and correct copy of the original as appears on record in this office.

WITNESS my hand and seal this 26th day of July, 19 78.

(SEAL)

Charlotte M. Johnston, CMC
City Clerk of the City of Orange

PUBLIC SAFETY ELEMENT
CITY OF ORANGE

Fire prevention -- California -- Orange
Crime " " " "
Disaster relief " " "
City planning -- California
Orange -- City planning

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Don E. Smith, Mayor Pro tem
Fred Barrera
James Beam
Jess Perez

CITY MANAGER

Gifford W. Miller

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PLANNING & DEVELOPMENT SERVICES

Bert K. Yamasaki, Director

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INTRODUCTION

The Public Safety Element is a mandatory component of the city's overall General Plan program. The purpose of the Element is to introduce safety considerations into the planning and development process in order to reduce loss of life, injury, damage to property, and economic and social dislocation resulting from fires, dangerous geologic occurrences, and other related hazards. Guidelines prepared by the Council on Intergovernmental Relations suggest that the Element consist of an identification and evaluation of existing and potential hazards, an identification of assets and constraints relative to reducing or eliminating hazards, the formulation of a public safety policy framework, and a description of tools and techniques that can be utilized to enhance the city's ability to improve public safety.

The Element concentrates on five principal areas of concern:

- . Fire
- . Crime
- . Flooding
- . Non-Seismic Geologic Hazards
- . Disasters

The Public Safety Element establishes goals as ideal directions or conditions which are sought by the community. Goals provide a framework for determining actions of the public sector and for evaluating the conditions created by the private sector. Policies relate to the type and level of city commitment to achieve stated goals. They can be viewed as measurable items where attainment of concrete implementation activities can be evaluated. The goals and policies contained in the Public Safety Element have been designed to be flexible yet reflect the desires of maintaining a safe environment for all residents of Orange.

ASSETS

Although the propensity for suffering major fire, crime, flooding, geologic and disaster related damage cannot be minimized, the City of Orange does have a number of assets in this regard. Foremost among the assets may be the relatively low density character of the community. Thus, chances are slight that damage resulting from one of the above hazards would affect large numbers of people.

Another asset is the quality of the city's fire, police and public works departments and emergency organizations. All are generally well rated and willing to take advantage of new methods, equipment, and techniques in the performance of their duties.

The city is also fortunate in having a number of ordinance programs and requirements already in existence pertaining to the above mentioned hazards. Primary ones relating to this Element are the Uniform Building Code, Uniform Fire Code, Fire Prevention Codes, Grading Ordinance, Zoning Ordinance, Subdivision Ordinance, and State Health and Safety Codes.

Public awareness of safety hazards is another important asset. The citizenry of Orange is quite familiar with the potential ravages of large fires, flooding, and earthquake activity because of past occurrences in the Southern California region. As such, they are well aware of the need to cooperate and assist the public sector in devising programs and activities directed at reducing, eliminating, or preventing the hazards.

DISCUSSION OF THE CONCEPT OF RISK

The State Guidelines for developing a Public Safety Element introduce the concept of "acceptable risk", and suggest that it be used as a guide for formulating plan policies and programs. Specifically, the Guidelines suggest that a policy statement be included in the Element which specifies the level or nature of acceptable risk to life and property. It is further recommended that land use standards be developed which reflect an acceptable level of safety hazards or risk. As the state suggests, risk factors should undoubtedly have a significant role in the formulation of policy pertaining to public health, safety, and welfare. However, it is questionable whether a public body can define and articulate a level of risk that will be acceptable to the entire community at large over any extended period of time.

An alternative approach has been alluded to by the State Joint Committee on Seismic Safety. This approach is set forth in a recent publication entitled, "Meeting the Earthquake Challenge." While the emphasis there is on seismic risk, the concept is equally applicable to the safety hazards discussed in this Element. Essentially, the Committee maintains that:

1. There is no uniform level of risk that is acceptable to the public.
2. Maximum safety is desirable.
3. Demands for increased safety must be related to costs.
4. Such demands vary with time, place, culture and a variety of other factors.
5. Society is capable of undertaking additional risk reduction measures.

The basic assumptions of the Joint Committee seem to imply that there can be no meaningful answer to the question of "how safe is safe enough?"

Following the reasoning of the Committee it does not seem that if constraints (i.e. lack of knowledge, limited resources, conflicting priorities) limit efforts to reduce risk, the remaining degree of risk should become "acceptable".

Since the risk clearly must be tolerated while not necessarily being "acceptable", the following definitions are offered to clarify the city's approach to the question of risk:

Tolerated Risk:

Perceivable risks to life and property that are not currently being reduced due to technological limitations, limited resources, or conflicting priorities. This definition assigns no characteristics to the nature of such risk and is designed solely to address its status in relationship to current reduction capabilities.

Unacceptable Risk:

Perceivable risks to life and property that must be reduced through ongoing government action programs.

Standards for Defining Unacceptable Risk:

The proposed approach, stressing the identification of unacceptable risks, is not new. Government codes and ordinances dealing with public health, safety and welfare have evolved over the years through just such a process. In its current form, this body of law represents a statement of those risks currently deemed unacceptable. It does not attempt to establish "how safe is safe enough?" It simply identifies conditions that are considered unsafe. This is a position the City of Orange has already taken by such actions as the adoption of the Uniform Building Code.

PART I

FIRE

The City of Orange is predominantly a developed, urbanized community with the exception of the eastern portion of the planning area which is currently undergoing or planned for development. As such, fires in the community are generally structural in nature, although a wide range of fire types and intensities can occur given the diverse nature of the urban environment.

Relative Fire Hazard in Orange

The relative fire hazard to the City of Orange as compared to other communities in the area is moderate. Some concern is justified for a conflagration potential in residential areas due to a combination of factors: Santa Ana winds, wood shingled roofs, and close dwelling unit spacing. In most other types of land uses, such as commercial and industrial, the fire problem is light to moderate when compared to many other communities because many of these types of uses have not fully developed and/or are of relatively new construction.

Residential Development

Because it is the single most extensive land use in the city, residential development constitutes major consideration in determining fire potential. This is especially true in high density multiple family areas, which present fire hazards not found in other types of occupancies. Common attics and separations that are sometimes violated by occupants installing electrical, plumbing, and other alterations promote fire spread in hidden areas. The problem is compounded by the misuse of flammables in quantities not safely protected, limited access to occupancies due to limited set-backs, improper parking in alleys and roadways, security fences that inhibit movement of fire combat forces, and restricted traffic flow within the complex.

High Value Areas

High value areas, such as the city's principal business districts, large single occupancies with minimal fire protection systems, and large complexes such as the Orange Mall and The City regional shopping centers, all require massive and immediate fire control forces if fire loss is to be kept to a minimum. High rise structures also demand special consideration in relation to fire safety.

Conflagration Potential

A conflagration is a fire which becomes widespread or crosses natural or man-made barriers such as streets, sidewalks, or prepared fire breaks. Fires in large complexes, although fire loss may be considerable, are not necessarily conflagrations unless the fire extends beyond the perimeter of the complex.

Potential conflagration areas in the City of Orange exist in and around the downtown Plaza, in the principal business districts, and in areas lying adjacent to the large open spaces in the eastern portion of the planning area. These conditions exist because of the structural condition of certain occupancies prior to adequate code enforcement, lack of on-site fire protection systems, horizontal fire spread due to inadequate fire separations, concentration of structures, and the presence of Santa Ana wind conditions.

Other Fire Hazard Areas

Other areas and uses in the city that present unique fire potential include: above ground storage of highly flammable materials, i.e., the storage facility at San Diego Pipeline located in the western portion of the city; facilities at which non-ambulatory or mobility-restricted persons are housed, i.e., hospitals, convalescent homes, and jails; facilities where large numbers of people congregate at one time, i.e., churches and schools; industrial plants where toxic gases are used; high pressure natural gas and petroleum products transmission lines; gases that burn without visible flame; explosives stored in homes illegally; and hazardous materials that can burst into flames spontaneously.

All of the above potential fire hazards are present in the City of Orange. Most significant sources of potential fire hazard have been located and identified, and safeguards taken or pre-plans prepared. Human carelessness and abuse, or natural forces beyond our immediate control, however, are factors that can still work against our best efforts to control, reduce, and eliminate fire potential in the community.

Fire Control Capabilities

Facilities

The location of fire stations is derived from the basic fire protection coverage of any area within the city. Of prime importance to the adequacy of this coverage is response time, which is basically a combination of distance from the fire station to the incident location and the average speed of travel by firefighting equipment. It is a generally accepted standard that fire stations be located so as to provide an average response time of five minutes or less in 90% of the incidents. There are at present six fire stations strategically located throughout the city that are operated by the Orange Fire Department.

Geographic Area Equipment

The City of Orange Fire Department presently has six engine companies, two truck companies, two flying squads, one paramedic unit, one manifold wagon, one foam trailer, one light auxiliary trailer, one bomb disposal trailer, and three reserve engines.

Through mutual aid and automatic aid agreements with other cities in the county, special firefighting equipment and additional manpower can be obtained.

Manpower

Fire Department manpower is theoretically based on the fire hazard potential existing in the community. In practice, however, this theory must be tempered with the city's financial capability to hire and maintain an adequate firefighting force. As mentioned previously, few communities can afford to maintain such forces and equipment at ideal levels.

The Fire Department currently employs approximately 110 firefighters working an average of 56 hours per week. The manning level established for each shift is three man engine companies, four man ladder truck companies, two man paramedic units, one man flying squad units, a battalion chief and driver aid. This is considered the minimum number of personnel that is safe and fire combat effective based on present fire potential. As the city grows, as more high rise structures are built, and as the industrial areas further develop, the fire problem and subsequent manpower and equipment requirements will change.

Water Supply for Fire Protection

Water required for fire protection in the city is supplied through 322 miles of water pipe and 2,572 fire hydrants. The city has two primary sources of water supply; 60 percent comes from nine wells located throughout the city while the remaining 40 percent comes from the Colorado River obtained through an agreement with the Metropolitan Water District (MWD). Feather River water from northern California is used to augment the present MWD system. The city has three connections to the MWD system which can deliver a total of 11,250 gallons per minute. The city also operates eleven water storage reservoirs with a total storage capacity of 26,350,000 gallons. Map A shows the location of these reservoirs throughout the community.

Average daily water consumption in the city is approximately 19,000,000 gallons. The required amount of water for fire protection is approximately 9,000 gallons per minute for a duration of 10 hours. This would result in a demand on the water system for an additional 5,400,000 gallons for the 10 hour period. Fire flow requirements throughout the city are based on land use ranging from 1,500 gallons per minute for residential development to 10,000 gallons per minute in high hazard and industrial areas. The present water supply system can generally handle the required flows for fire protection.

Emergency Medical and Rescue

Emergency medical services provided to the City of Orange are totally integrated into the fire protection system. All requests for emergency medical aid are handled by the nearest available fire company and fire paramedic unit. The quality of paramedic service is controlled by the Orange County Health Officer and each incident is under radio and telemetry supervision of base station hospitals, doctors, or intensive care nurses.

Rescue services are also integrated into the system. All trapped victims receive extrication services from the nearest available engine, ladder, or paramedic unit. Light rescues can be performed by the engine companies, but heavy rescues require specialized equipment and tools carried on the ladder trucks. Some heavy rescues and collapsed building situations may require responses and specialized equipment from the public works department or private contractors.



legend

- enclosed reservoir
- open reservoir
- ★ flood control
- ☆ recreational lake

**water
facilities**



map A

department of
planning and
development services

city of orange general plan

**public safety
element**

Programs and Services

Fire Prevention Bureau

The best way to fight fires is obviously to prevent them from occurring in the first place. As mentioned earlier, human error and natural forces will always present a danger for fire eruption, but steps can be taken to minimize and sometimes eliminate these negative factors.

The Orange Fire Department has an established Fire Prevention Bureau. The Bureau is responsible for code enforcement, fire investigation, public information, and coordination of fire protection systems needs with other agencies.

The prevention of fire is based upon the knowledge of what there is to burn, where it is located, and what the source and causes of ignition are. Prompt and thorough investigation of all fires is the cornerstone of any fire prevention program.

The Fire Prevention Bureau monitors fire prevention and inspection programs performed in the field for existing occupancies and provides expertise to the fire companies on code interpretation. All occupancies except single family dwelling units are inspected at least once a year and certain occupancies are inspected up to four times a year by Fire Department personnel.

All new construction plans are evaluated to determine fire protection needs. Fire prevention specialists work closely with other city departments in helping developers provide a fire resistive and adequately protected development.

When fire ignitions do occur, the Bureau investigates the cause and recommends remedial action. It also has the responsibility for follow-up on all incendiary and arson fires in cooperation with the Police Department.

Public Information and Education

The Fire Prevention Bureau has the responsibility of providing a comprehensive public information program to alert citizens to fire safety. Employees of hospitals and convalescent homes receive training in fire evacuations and training. The Bureau is also involved in the Junior Fire Marshal program aimed at fifth grade elementary school students. This Program encourages youngsters to practice fire safety. Many citizens groups, civic and private organizations, and citizens with a desire to learn fire safety and fire aid can receive this information through the Bureau.

Automatic-Aid and Mutual-Aid Assistance

The City of Orange Fire Department has the capability of combating the normal fire potential in the community. Like most cities, however, the Department is not adequately manned or equipped to combat large conflagrations or large area fires. For this reason, the city has entered into automatic-aid and mutual-aid agreements with other jurisdictions.

Automatic-aid refers to agreements between jurisdictions to assist each other in the day-to-day or more routine type fire situations, or when firefighting forces from one jurisdiction may be able to respond more quickly to a fire incident in another jurisdiction than that jurisdiction's firefighting forces. Currently, the City of Orange has automatic-aid agreements with the City of Santa Ana and Orange County. In the near future, agreements will be adopted with the cities of Garden Grove and Anaheim. Automatic-aid agreements with Orange County, for example, enable the Orange Fire Department to respond to fire incidents in county island areas surrounded by the city.

In the event of very large conflagrations or disaster-related incidents requiring massive fire response, the City of Orange has entered into statewide mutual-aid agreements. Under such circumstances, firefighting assistance can be obtained from almost anywhere in the state.

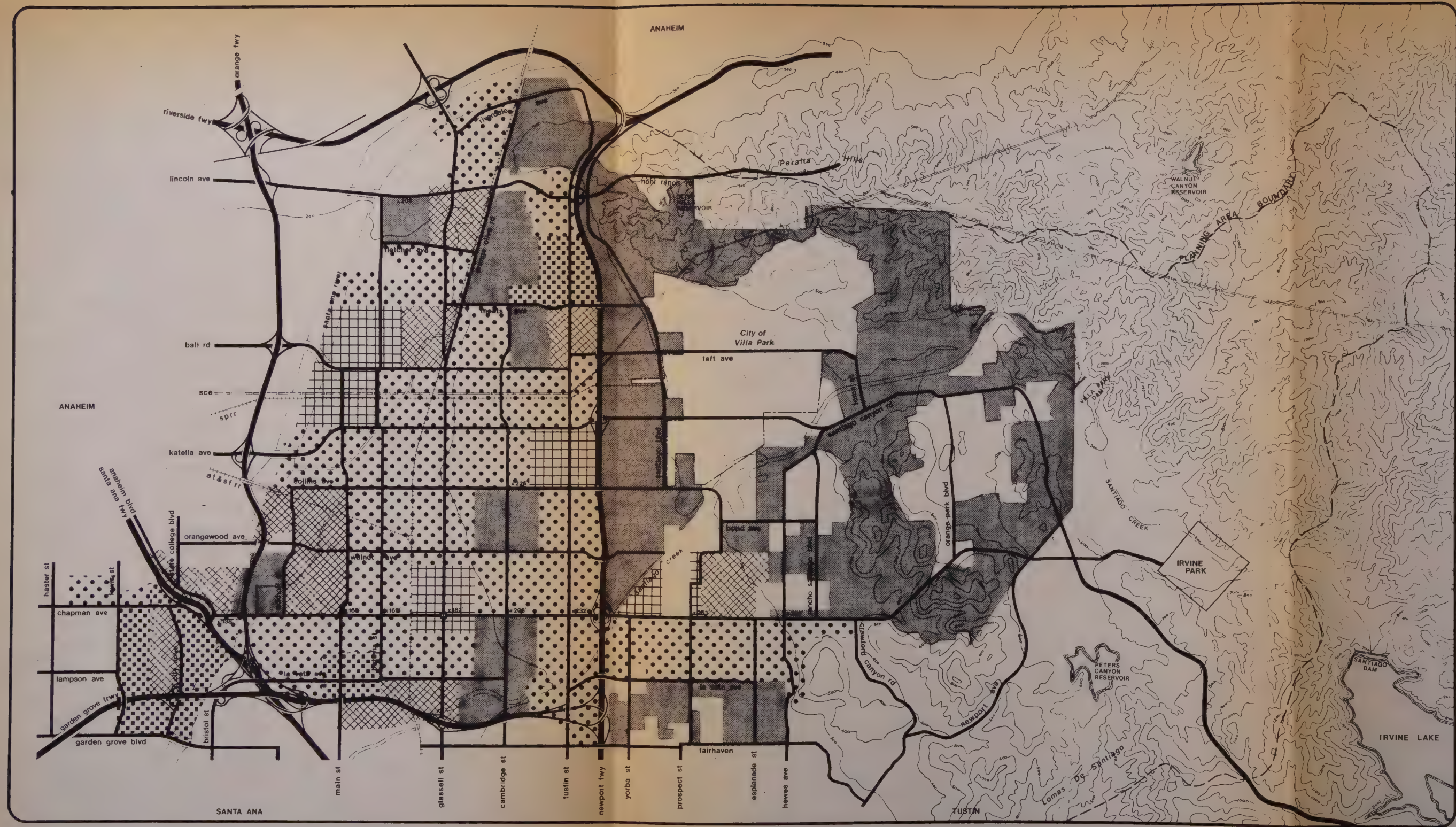
Fire Station Locator Project

The Orange Fire Department, in an effort to evaluate and hopefully increase fire protection service, has participated with surrounding jurisdictions in a computerized Fire Station Locator Project, the guidelines for which have been laid down by Public Technology, Inc. Under the project, over 700 of the city's larger institutions and industries have been assessed for both fire flow requirements needed for a major fire, and for the negative social and economic impacts on the community should any of these properties be lost due to fire. The city was then divided into geological fire management zones and a designated focal point assigned each zone at a centrally located intersection. Considering these factors, each zone has been assigned a hazard severity ranking, as shown on Map B.

The above data, plus actual driving times to each focal point, are then fed into a computer. Using present city fire station locations and one deep fire station location in bordering communities, a more accurate determination of the city's capabilities of handling fire emergencies can be made.

Various proposed fire station locations will also be fed into the computer, giving the Fire Chief a more accurate method of locating fire stations in relation to existing and proposed developments.

The Fire Station Locator Project team meets regularly with surrounding communities to insure a reasonable degree of uniformity of effort.



city of orange general plan

public safety element

legend

FIRE SEVERITY CATEGORY



A High Hazard



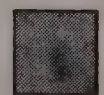
B



C



D

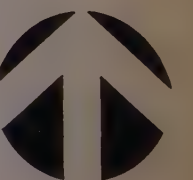


E Low Hazard



fire hazard
severity

map B



department of
planning and
development services

Goals and Policies

Goal: Protection of life and property of the residents of Orange from the hazards of fire.

Policies: Continue to identify and evaluate potential fire hazards and fire hazard areas.

- . Continue to incorporate advances in fire prevention, detection, and reporting techniques into the operation of the Orange Fire Department.
- . Encourage the installation of automatic smoke detection systems in all new and existing residential, commercial, and industrial structures.
- . Encourage the installation of automatic sprinkler systems in all large, non-residential structures.
- . Continue to enforce the Uniform Building Code, Uniform Fire Code, and Fire Prevention Codes and incorporate advances in construction technology as it relates to fire safety when they become available.
- . Continue support for programs carried out by the Fire Prevention Bureau.
- . Continue to evaluate development proposals for fire safety and assist private developers in designing fire resistive structures.

Goal: Public awareness of fire hazards, fire prevention, and emergency response in the event of fire.

Policies: Make available copies of the Public Safety Element to all segments of the community.

- . Establish community oriented neighborhood action programs to inform and educate the general public as to fire safety and prevention.
- . Utilize all available media to disseminate fire safety information.

Goal: An adequately equipped and manned fire department able to respond expeditiously and effectively in the event of fire.

Policies: Maintain an acceptable level of fire department personnel consistent with demand for fire protection services and fiscal resources.

- . Continue to adopt and respect agreements with adjacent communities for mutual and automatic aid assistance.
- . Continue to train firefighting personnel in the latest fire combat techniques.
- . Continue to implement activities of the Fire Station Locator Project.

PART II

CRIME

Crime is a complex social phenomena, the causes and effects of which are beyond the scope of the General Plan. The purpose of including this section on crime in the Public Safety Element is to acknowledge that there is a definite relationship between crime and the physical design and layout of the community, and to discuss mechanisms that may be utilized for incorporating crime safety into the existing urban environment and the development process of the community.

Concept of Defensible Space

Sociologists and criminologists have offered innumerable theories about the causes of crime and the fear of crime in our society. It is clear that law enforcement alone cannot solve these problems. In recent years there has been growing interest and research into the relationship between physical design and criminal activity. Defensible space is a concept used to describe this relationship. The term denotes an environment whose physical characteristics -- building layout and site plan -- function to allow occupants themselves to become the key agents in ensuring their own security.

A thorough discussion of defensible space is beyond the scope of the Public Safety Element. It is mentioned here only as a means of introducing crime safety consideration into the development process of the community. Defensible space techniques are currently being utilized by the Police Department in assisting private developers to design crime resistant projects and structures in the community.

Program and Activities

The City of Orange Police Department is presently preparing a building security ordinance that will supplement the Uniform Building Code. The ordinance deals with security hardware requirements and building standards relative to crime hazard reduction or prevention.

The Police Department carries on a number of community programs and activities to alert and inform residents and businessmen of crime problems and prevention techniques. Upon request, Police Department personnel will inspect residences and businesses for security integrity and make suggestions for improvement. It prepares and distributes flyers to various areas of the community notifying occupants of particular types of crimes currently being committed and identifying mitigation and prevention measures. It also conducts lectures at the elementary school level in the area of bicycle safety and at the high school level in the law enforcement curricula.

Manpower and Equipment

The City of Orange Police Department currently has 127 sworn officers operating in three divisions: Uniform, Detective, and Management Services. The Department has approximately 60 patrol and undercover vehicles, as well as 10 motorcycles. Police Department operations are headquartered in the Civic Center complex.

Goals and Policies

Goal: Provide safety for the residents and property of Orange from crime.

Policies: Develop criteria for recognizing, reviewing, and recommending programs and activities to prevent criminal activity in the community.

- Prepare and implement a computerized crime reporting system to categorize types of crime by geographic area.

- . Develop, adopt, and implement a Building Security Ordinance.
- . Continue to promote and integrate the concept of "defensible space" into all phases of the planning and development process.

Goal: Achieve greater public awareness of crime-related hazards and crime prevention techniques.

Policies: Make available copies of the Public Safety Element to all segments of the community.

- . Continue to support neighborhood meetings and community programs on crime prevention and education.
- . Continue to disseminate information regarding crimes and crime prevention techniques to the general public through all available media.

Goal: A Police Department adequately manned and equipped to ensure the safety of residents and property from crime.

Policies: Maintain an acceptable ratio of police personnel to population commensurate with both demand for service and the city's fiscal resources.

- . Continue to support programs and studies which update techniques for fighting crime and train police personnel in their utilization.

PART III

FLOODING

The City of Orange is partially situated in a coastal alluvial plain. Drainage stemming from the mountains to the north and east must cross Orange to reach the coast. This water flow is generally contained within the Santa Ana River, which forms a portion of the city's westerly boundary, and the Santiago Creek, which runs diagonally through the city in a southwest direction. Augmenting these two water courses is a system of smaller flood control channels, drains, and reservoirs. Our best efforts to contain and control drainage, however, are sometimes overpowered by the forces of nature, and, as a result, portions of the community are subject to flooding.

Flood Potential

Certain areas lying adjacent to the Santa Ana River, Santiago Creek, and smaller flood control channels are subject to flooding in the event of what is termed a 100 year flood. The 100 year flood, also known as the Intermediate Regional Flood, is a safety hazard that could occur about once in 100 years on the average, although it may occur in any year or more than once in a year. Usually the peak flow of such a flood is developed from statistical analysis of stream flow, precipitation records and the runoff basin.

Flood Control System

As previously mentioned, the Santa Ana River and Santiago Creek form the primary water courses for the flow of water across the city on its way to the coast. They are augmented by a system of smaller flood control channels, dams, and reservoirs. Within the planning area there are two dams: 1) Villa Park Dam, owned by the Orange County Flood Control District, and 2) Santiago Creek Dam, owned by the Serrano Corporation Irrigation District. Four reservoirs exist in this area which are not owned by the city: 1) Peters Canyon Reservoir, owned by the Irvine Company, 2) Olive Hills Reservoir, 3) Walnut Canyon Reservoir, and 4) a small reservoir by Nohl Ranch Road, all owned by the City of Anaheim. The City of Orange owns and operates eight water storage reservoirs and three forebays (where water is aerated.) Map A in Part I depicts the location of these various facilities.

Although not in Orange County, Prado Dam, located in Riverside County and owned by the Army Corps of Engineers, should be mentioned since it feeds into the Santa Ana River.

Emergency Plans

Flood related hazards can manifest themselves in two ways: 1) excessive rainfall which breaches the flood control system and structures, and 2) dam failure or breakage. In both instances, the city has prepared or is in the process of preparing emergency plans. The City of Orange Emergency Plan is explained in more detail under the Disaster section of this report.

The city is currently in the process of developing a Dam Failure Emergency Evacuation Plan. The plan is an integral part of the city's Emergency Plan. As such, it serves as an extension of the city's basic emergency policy. The plan is for the emergency evacuation of those areas of the city that would be endangered by a partial or total failure of five dams and reservoirs in Orange and Riverside Counties. The intent of the plan is to minimize injury to residents and loss of property by preparing the various city departments, other public agencies, and private organizations to react promptly and efficiently to the emergency.

Goals and Policies

Goal: A community safe from the hazards of flooding consistent with available resources and technology.

Policies: Continue to identify, map, and evaluate potential flood hazard areas in the community.

- . Complete and adopt the Dam Failure Emergency Evacuation Plan.
- . Evaluate all proposed construction in flood hazard areas for safety requirements.
- . Evaluate all public improvements in flood hazard areas for adequacy in withstanding flood conditions.
- . Prepare and adopt the Master Plan of Drainage.
- . Support studies aimed at improving dam and flood control system construction technology.
- . Support the periodic inspection of dams and reservoirs to ascertain present condition and level of safety.

Goal: Public awareness of flood hazard potential in the community and basic knowledge of disaster response.

Policies: Make available copies of the Public Safety Element, flood hazard map, and Dam Failure Emergency Evacuation Plan to the general public.

- . Prepare and distribute flood hazard and response information to households residing in identified flood hazard areas.

Goal: Coordinate an expeditious response in the event of a flood related disaster.

Policies: Continue to prepare, review, revise and update emergency response plans and programs between the city, dam and reservoir owners, and state and federal agencies responsible for dam safety and disaster response.

- . Continue to train disaster response personnel in the latest technological and operational advancements.

PART IV

NON-SEISMIC GEOLOGIC HAZARDS

The City of Orange, because of its location, subsurface structure, and topography, is subject to a number of geologic hazards. Geologic hazards are generally defined as those potential safety hazards dealing with the earth surface and subsurface activities that create conditions requiring special attention. This attention normally involves environmental study and an evaluation of what could occur as a result of the hazard.

Many geologic hazards are related to earthquake activity, and as such are discussed in greater detail in the Seismic Safety Element. While the hazards discussed in this section of the Public Safety Element can also be related to earthquake activity, they are discussed here in the context of occurring other than during the course of a seismic event.

Slope Stability

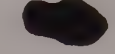
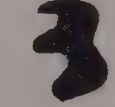
Slope stability in the planning area is affected by three interrelated factors. These include surface and subsurface waters, geologic structure and rock types, and the degree of slope. Water moving over or under the land surface erodes, steepens, and undercuts slopes, thus removing lateral support and decreasing stability. Stability is also dependent on the specific properties and combinations of materials forming the slope. Moderate to steep slopes are most likely to have stability problems. Slope failure such as landslides, rockslides and mudflows have occurred in the eastern portion of the planning area. Exposure to such hazards has increased with the urbanization of hilly areas. Map C depicts areas of known landslides and areas of greater than 30 percent slope within the planning area.

Subsidence

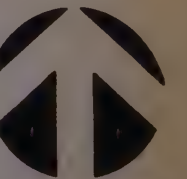
Subsidence is the process of lowering the elevation of an area of the earth's surface. It can be caused by tectonic forces deep within the earth or by consolidation and densification of sediments sometimes due to withdrawal of fluids. Map D depicts a subsidence area of .01 to .02 feet found in the southwestern portion of the city which apparently occurred between 1956 and 1961. It is the northern edge of a larger subsidence area having a maximum lowering of .4 feet centered approximately two miles north of Santa Ana.



legend

-  known landslides
-  30% and above slope areas & known geologic instability

landslides
slope areas

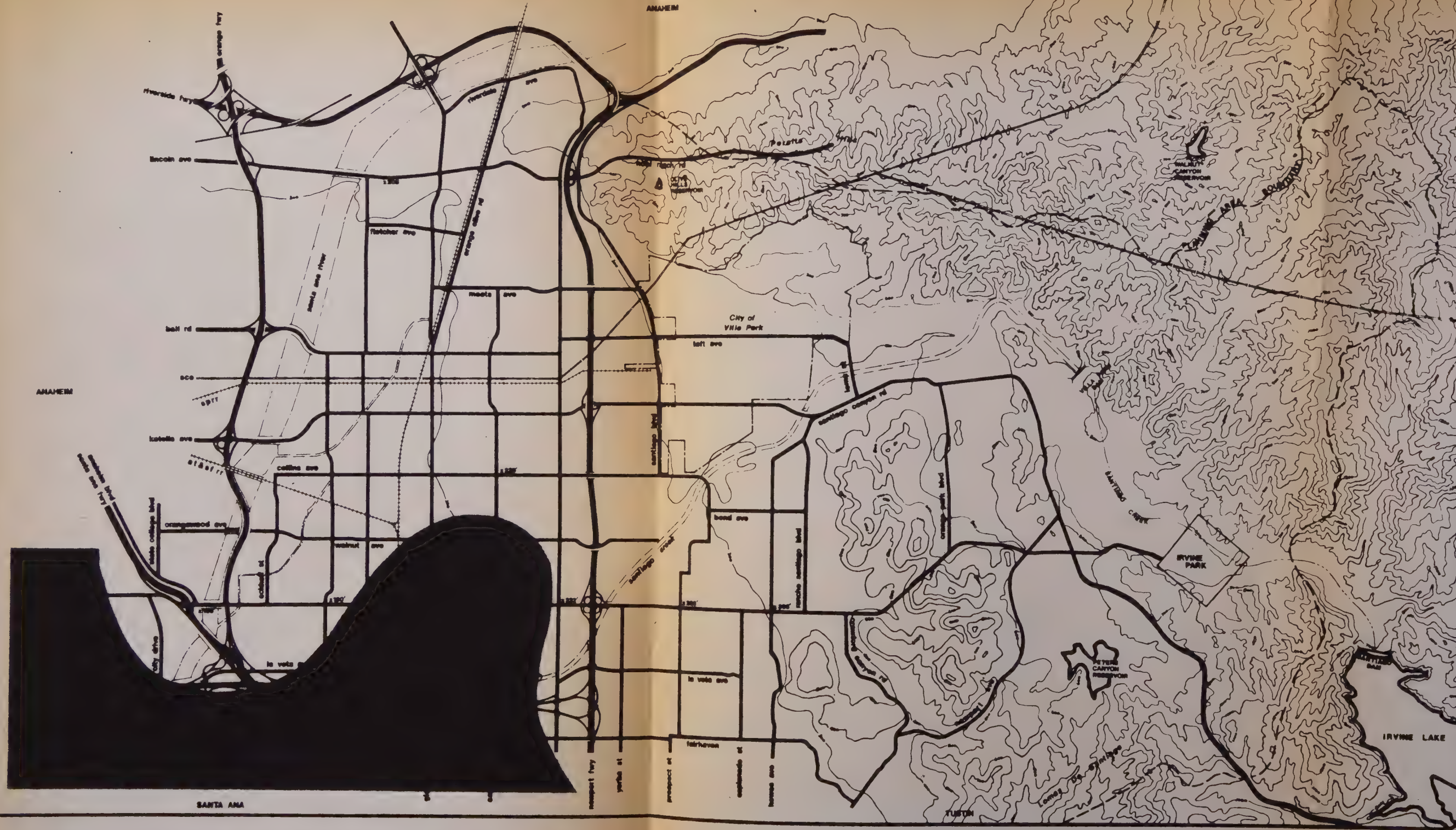


map C

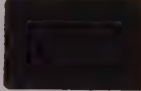
department of
planning and
development services

city of orange general plan

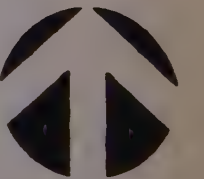
public safety
element



legend

 ground subsidence area

subsidence area



map D

department of
planning and
development services

city of orange general plan

public safety
element

Erosion Activity

Land erosion is a natural process by which soil is removed from one area and transported to other areas largely by means of wind, gravity, and moving water. If water moves over level areas, little physical damage occurs to structures. However, if the flow of water is constricted or the slope steepened, the velocity increases and deep gullies may result. Accelerated erosion within an urbanized area can cause damage by undermining structures, blocking storm sewers, and depositing silt, sand, or mud in roads, basements and tunnels.

Goals and Policies

Goal: Protection of life and property from geologic hazards.

Policies: Continue to identify and evaluate geologically hazardous areas.

- . Continue to review, revise and update development standards for land use and construction.
- . Prepare and adopt a hillside grading ordinance.
- . Support programs to investigate and understand phenomena creating geologic hazards.
- . Continue to review, revise and update the city's emergency plan and response capabilities.
- . Provide technical and policy information regarding geologic hazards to developers and other interested parties.

PART V

DISASTERS

Disasters can occur at any time and take many forms, ranging from major fires to nuclear explosions, and may involve both life and property. It is impossible to predict with a reasonable degree of accuracy when, where, or what type of disaster might occur and how extensive resulting damage may be, but it is possible to prepare measures for disaster response in advance of such occurrences. The mobilization of the public and private sector in responding to disaster situations requires a comprehensive and complex set of programs and procedures if loss of life, injury, and property damage is to be minimized.

City of Orange Emergency Plan

Since 1973 the City of Orange has had an established Emergency Plan which complies with state law and is coordinated with other cities and counties within Southern California. The purpose of the Emergency Plan is to:

- . Provide a basis for the conduct and coordination of operations and the management of critical resources during emergencies.
- . Establish a mutual understanding of the authority, responsibilities, functions, and operations of local government during emergencies.
- . Provide a basis for incorporating into the city emergency organization non-governmental agencies and organizations having resources necessary to meet foreseeable emergency requirements.

The Emergency Plan outlines procedures and operations which are to be followed or carried out in the event disaster strikes. The plan establishes:

- . A Warning System for relaying notice from the federal government to the public of impending or actual attack.
- . An Emergency Communication System to support field activities of the emergency organization and link the community to other jurisdictions or to higher levels of the statewide emergency organization.

- . An Emergency Broadcast System (EBS) to disseminate emergency information.
- . An Emergency Operation Center (EOC) for the centralized direction and control of the emergency organization and general public.
- . A Shelter System to control and organize public and private structures for use as shelter during an emergency.

Map E shows the location of certain critical facilities that will be utilized in the event of disaster, and the location of hospitals in relation to the street system.

Streets and Highways

Streets and highways form the major connecting system throughout the community. As such, they are the primary point around which any evacuation or emergency transportation network will operate. Street widths in the City of Orange are planned for in accordance with design standards contained in the Standard Plans report of the Department of Public Works and are generally as follows:

Major arterials	-	120 feet
Primary arterials	-	100 feet
Secondary arterials	-	80 to 88 feet
Commuter	-	60 feet

While street widths in the above categories vary somewhat according to individual circumstances, they can be utilized in planning for evacuation routes and emergency transport operations. Hillside and rural areas may require the utilization of more innovative response activities in the event of a disaster, such as air transportation, helicopter movement, and organized mobile convoys.

Goals and Policies

Goal: Community awareness of potential disaster-related hazards, and preparedness to respond in a quick, orderly, and safe manner in the event of disaster.

Policies: Make available copies of the Public Safety Element, Seismic Safety Element, and Emergency Plan to all segments of the community.

- . Encourage employers and local organizations to train employees and members as to proper safety precautions and procedures to be followed in the event of a disaster.

- . Insure that high occupancy, critical structures, and utilities are designed to sustain minimum damage and continue to function during emergency situations.
- . Utilize all available media to distribute information directed at increasing residents knowledge of disaster and disaster response.
 - Provide trained personnel to lecture and discuss disaster planning with various segments of the community.
 - Provide all households with emergency phone numbers of police, fire, hospitals and emergency facilities and services.

Goal: Comprehensive inter- and intra-jurisdictional coordination in disaster relief efforts.

Policies: Continue planning, preparing and adopting agreements with other cities for mutual aid assistance.

- . Continue to review, evaluate, and revise the city's emergency plan to incorporate new disaster response techniques and procedures.

Goal: Emergency facilities adequately manned and equipped to respond in an expeditious and effective manner during any disaster situation.

Policies: Conduct periodic inventories of disaster response equipment and manpower to ensure adequate level of service in the event of disaster.

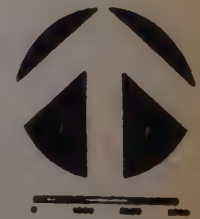
- . Continue to coordinate the city's emergency plan with those of private institutions providing disaster response activities to ensure compatibility of procedures and operations.
- . Conduct periodic disaster drills to evaluate and enhance the preparedness of the public and private sector in responding to disaster situations.



legend

- ★ city fire stations
- ☆ county & other fire stations
- ▲ police station
- hospitals
- ⊙ emergency operation & communication center

vital facilities



IMPLEMENTATION

As discussed throughout this document, there are a number of programs, ordinances, codes, and standards already established throughout the governmental structure at the local, county, state and federal level that pertain directly to safety hazard reduction, prevention, mitigation, and emergency response. Departmental and organizational responsibilities relative to their enforcement are well established and in operation. Continual review, revision, and updating of these various measures, and the Public Safety Element, will ensure that the quality of life and property in the community will be the highest and safest available.

Prepared By:
Department of Planning
and Development Services

January, 1978

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